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NexGenBus Profile



Sid Jones
NexGenBus Project Manager

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Scope



- Minimum required to achieve interoperability between multiple vendors' end-items on a Fibre Channel instrumentation bus.
- This document only addresses the ability to move the data.
 - Data format is beyond the scope

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Order of Precedence

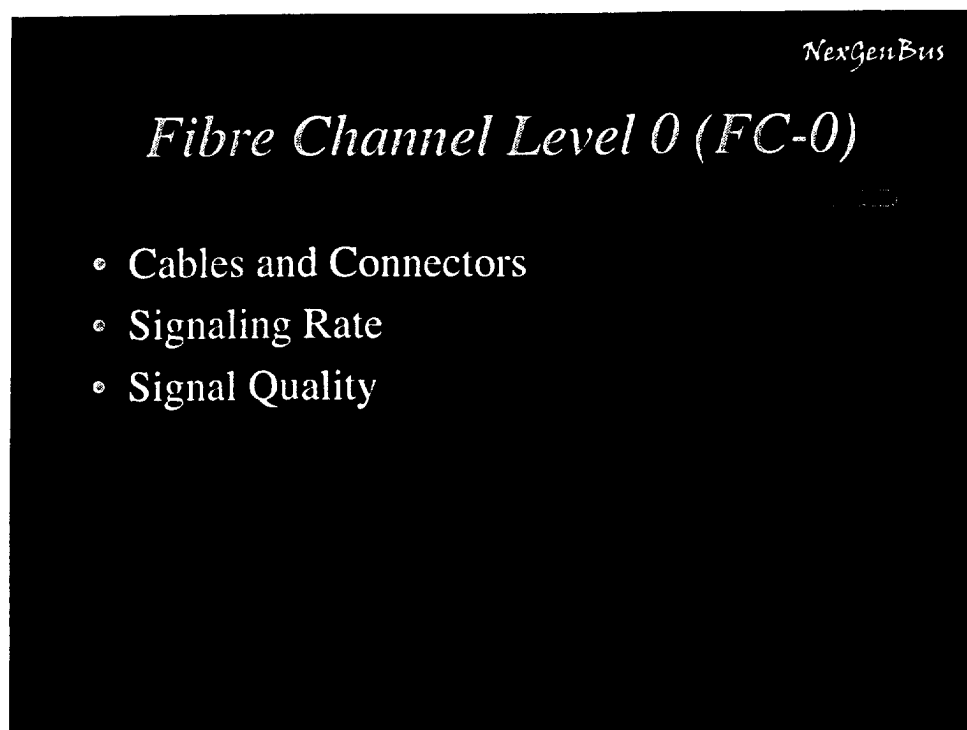
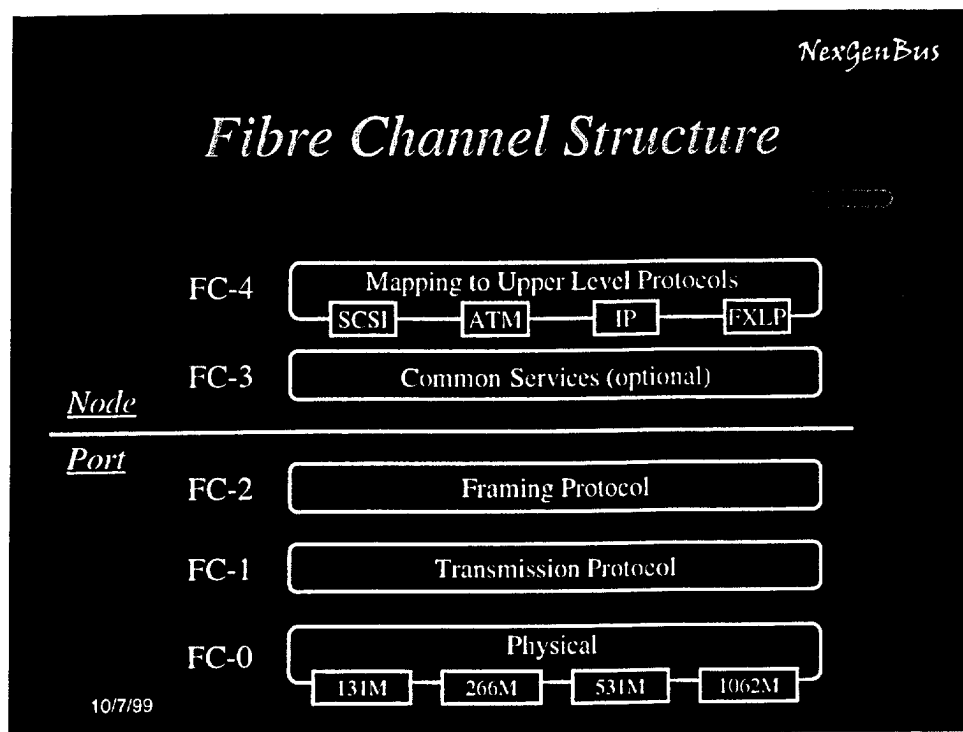
- The order of precedence for instrumentation interoperability shall be:
 - This document
 - The FC-AE profile (when published)
 - The Fibre Channel suite of standards.

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Responsibility

- Cognizance of this profile remains with the RCC Telemetry Group.
- The Fibre Channel documents including the FC-AE Profile Technical Report are the responsibility of the T11 Technical Committee (TC)

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Fibre Channel Level 1 (FC-1)

- No Changes

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Fibre Channel Level 2 (FC-2)

- Port Type
- Login
- Class of Service

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Fibre Channel Level 3 (FC-3)

- No Changes

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Fibre Channel Level 4 (FC-4)

- Protocol

FC-PH-x (X3.230, X3.297, X3.303)	
Section	Change
2	Normative References
	MIL-C-38999 Connectors, Electrical, Circular, General Specification For. <i>[Gore connector is not strictly per std, Thomas will modify appropriately]</i>
	MIL-C-17/Quad Cable <i>[Gore cable is not strictly per std, Thomas will modify appropriately]</i>
3	Definitions and Conventions
3.1.70	NL Port functionality shall be required
5	FC-0 Functional Characteristics
5.1	Addition of Gore cable in the general characteristic section.
5.1	1,063 Mbaud support required
5.7	Media designation for Quad cable will be 'QU' <i>[We need to pick a designation to identify this quad cable in the FC-0 nomenclature like in Table 3 below.]</i>

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5.8	Update Table 3									
	<table><tr><th colspan="3">Part of Table 3, Electrical Media Signal Interface Overview</th></tr><tr><td colspan="3">100 MB/sec 1,062.5 Gbaud</td></tr><tr><td>100-TV-EL-S Subclause 7.2 0-25m</td><td>100-MI-EL-S Subclause 7.2 0-10m</td><td>100-QU-EL-S Subclause 7.4 0-25m</td></tr></table>	Part of Table 3, Electrical Media Signal Interface Overview			100 MB/sec 1,062.5 Gbaud			100-TV-EL-S Subclause 7.2 0-25m	100-MI-EL-S Subclause 7.2 0-10m	100-QU-EL-S Subclause 7.4 0-25m
Part of Table 3, Electrical Media Signal Interface Overview										
100 MB/sec 1,062.5 Gbaud										
100-TV-EL-S Subclause 7.2 0-25m	100-MI-EL-S Subclause 7.2 0-10m	100-QU-EL-S Subclause 7.4 0-25m								
7	Electrical Cable Interface Specification									
	<i>[Thomas updating based on lab tests]</i>									
	<i>[Update table 10]</i>									
7.4	Quad Data Link -- Info will have to be added to include the Gore cable. It should follow the format in the previous/current sections. Content will be based on the results from the test plan and cable mfr.									

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9	Electrical Cable Plant Specification
9	<i>[Thomas updating based on lab tests]</i>
9.5	Quad Cable Plant Specification (new section) A new section will have to be added to include the Gore cable. It should follow the format in the previous sections. Content will be based on the results from the test plan.
22	Classes of Service
22.3	Class 3 – Datagram support is required.
23	Login and Service Parameters
23	Nodes shall support implicit login and optionally support explicit login. <i>[Here's my thinking...see section 6.3.4]</i>

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FC-AL (X3.272)	
Section	Change
11	Clock Synchronization Service (New Section)
	Each L_Port shall be capable of storing a time propagation delay value. Whenever the timeserver sends a time value, the L_Port will add its delay value to the time value to update its real-time clock. The delay value format shall be a binary representation of nanoseconds delay. In order to accommodate the maximum delay from a timeserver, a 16 bit data field should be used.
	$\text{Max delay} = 125 \text{ nodes} \times 240\text{ns delay/node} + 126 \text{ links} \times 5\text{ns/m} \times 30\text{m} = 48,900\text{ns}$
FC-IP, RFC 791?	
Section	Change
?	?
	IP support as an upper layer protocol is required

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Avionics Working Group

- Technical Committee T11.4 sponsors a Fibre Channel Avionics Environment (FC-AE) group
- Produce a "Profile" using Fibre Channel in an avionics environment

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Informative Annex

- Topics that may make a system more useful, but not required for interoperability
 - Architecture
 - Open System
 - Topology

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Informative Annex - cont.

- Fault Tolerance
 - » Port Bypass
 - » Hub
 - » Redundancy
 - » Addressing
- Timing
 - » Data Correlation
 - » Simultaneous Sampling
 - » Data Source Reconstruction

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Informative Annex - cont.

- Interoperability
 - » Physical
 - » Port Type
 - » Signaling Rate
 - » Login
 - » Class of Service
 - » Protocol

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